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Petrology, geochemistry and mineral chemistry of Shahrak intrusive body (East of Takab, Northwest of Iran)

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Abstract: The intrusive body of the Shahrak is located between the West Azarbaijan and Kurdistan provinces. Lithologically, this intrusive body consists of granodiorite, monzonite, monzodoirite and monzogobbro, which intruded into Oligo-Miocene sedimentary units and Cretaceous and Precambrian metamorphic rocks. Mineral chemistry studies of granodiorite and monzogabbro rocks show that plagioclases have labradorite to bytownite composition, and clinopyroxenes are augite. Thermobarometry calculations of pyroxene minerals indicate that the formation temperature of these minerals ranges between 900 to 1250 ^{o}C and the crystallization pressure of clinopyroxenes is estimated to be about 6 to 10 kbar. The geochemical investigations of the whole rock indicate that the magma has metaluminous and calc-alkaline affinity. In the multi-element spider diagram normalized to condrite and primitive mantle, there is a significant enrichment of LREE than HREE and depletion of Ti, P, Ta and Nb, which is a characteristic feature of the volcanic arc rocks of the subduction zones. Also, based on different tectonomagmatic diagrams, these rocks are located in the active continental margin environment. Based on REE elements, the parental magma of the studied rocks is probably originated from an enriched mantle.

Keywords: *Intrusive mass of the Shahrak; East of Takab; Mineral chemistry; active continental margin.*

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